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How to Measure Interpersonal Trust? A Comparison of two Different Measures

by Wolfgang Jagodzinski and Kazufumi Manabe¹

Zusammenfassung

Obwohl das interpersonales Vertrauen in den letzten Jahren zu einem wichtigen sozialwissenschaftlichen Konzept geworden ist, lässt die Messung dieser Variablen nach wie vor zu wünschen übrig. Die meisten international vergleichenden Studien verwenden die alte Variable aus dem amerikanischen General Social Survey (AGSS-Item), die häufig als vage und unreliabel kritisiert worden ist. Im ISSP-Modul 1998 zum Thema Religion ist versucht worden, die Frageformulierung des AGSS-Items zu verbessern. Das Papier untersucht, ob dieser Versuch erfolgreich war. Das Resultat ist positiv. Das neue Item korreliert mit Institutionenvertrauen höher als die alte AGSS-Frage.

Abstract

Although interpersonal trust has become a prominent concept in social theories the measurement theory is still underdeveloped. Most comparative surveys still apply the old American General Social Survey question (AGSS item) which has often been criticised as vague and unreliable. In the ISSP module 1998 on religion it has been tried to improve the wording of the item. The paper investigates whether this new item in ISSP 1998 correlates higher with external variables than the old AGSS item in the European Value Study 1999. The result is positive. The new item displays a higher correlation with confidence in institutions than the old AGSS measure.

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1 Introduction

Trust has become a key concept in various fields of social research. *Fukuyama* (1995) has argued that societal trust is a good predictor of economic success. *Putnam* (1993; 2000) considers trust as a component of the social capital of a society. It is true, trust tends to reduce the transaction costs and in this sense contributes to the welfare of a society. The higher the level of trust, the less a society has to invest into protection and security measures. If people trust each other, they will also overcome the free-rider problem in the production of collective goods more easily.

The common sense notion of trust is highly ambiguous in the sense that it can refer to more or less generalised modes of trust. We can trust a person P to perform action A at point in time T, we can trust P in private or professional matters but not in both, we can trust P in general or we can have trust in human beings in general. *Coleman* (1990) was among the first who elaborated a more precise theoretical concept of trust. The measurement of trust has moved in different directions. While psychologists have developed scales which implicitly or explicitly consider trust as a broadly defined, stable feature of the human nature (see *Wrightsmann*, 1991) economists started to develop measurement instruments for trust in economic behaviour like the lending of money. This specific kind of trust is not only measured by means of questionnaire items but also by experiments in which subjects have a fixed amount of money at their disposal (*Glaeser et al.*, 2000). Such experiments have recently been included in the socio-economic panel, a nation-wide German survey (*Fehr et al.*, 2003).

Like the psychological scales, the sociological indicators of interpersonal trust aim at the measurement of a stable personal characteristic. In contrast to psychological studies, however, sociological surveys usually include only a single indicator of interpersonal trust and therefore cannot correct measurement errors. While this common practice is surely suboptimal from the viewpoint of measurement theory, it can always be defended with pragmatic arguments. First, the high costs of a survey, particularly of an international survey do not allow the inclusion of a large item battery for a single concept. Furthermore, there are always so many other interesting concepts and topics that the measurement of each concept has to be restricted to the absolute minimum number of indicators. Finally, replication requires that we always use the same measurement instruments. As a consequence, almost all large international surveys use a single indicator for the measurement of interpersonal trust. This is also true for the International Social Survey Programme. In 1998 a suggestion has been made to improve at least this single indicator of interpersonal

trust by changing the item wording. In the following we will investigate whether this change has led to an improvement.

2 Items and Unidimensional Distributions

We distinguish an old and a new measure of trust. The old has been adapted from the General Social Survey in the United States. It reads:

Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?

A Most people can be trusted

B You can't be too careful in dealing with people

This item has been used in the module of the International Social Survey Programme on religion (ISSP 1991) as well as in the European Value Survey (1999). In the second ISSP module on religion (1998), however, the wording of the question was changed. The new ISSP question reads:

Generally speaking, would you say that people can be trusted or that you can't be too careful in dealing with people?

1 People can almost always be trusted

2 People can usually be trusted

3 You usually can't be too careful in dealing with people

4 You almost always can't be too careful in dealing with people

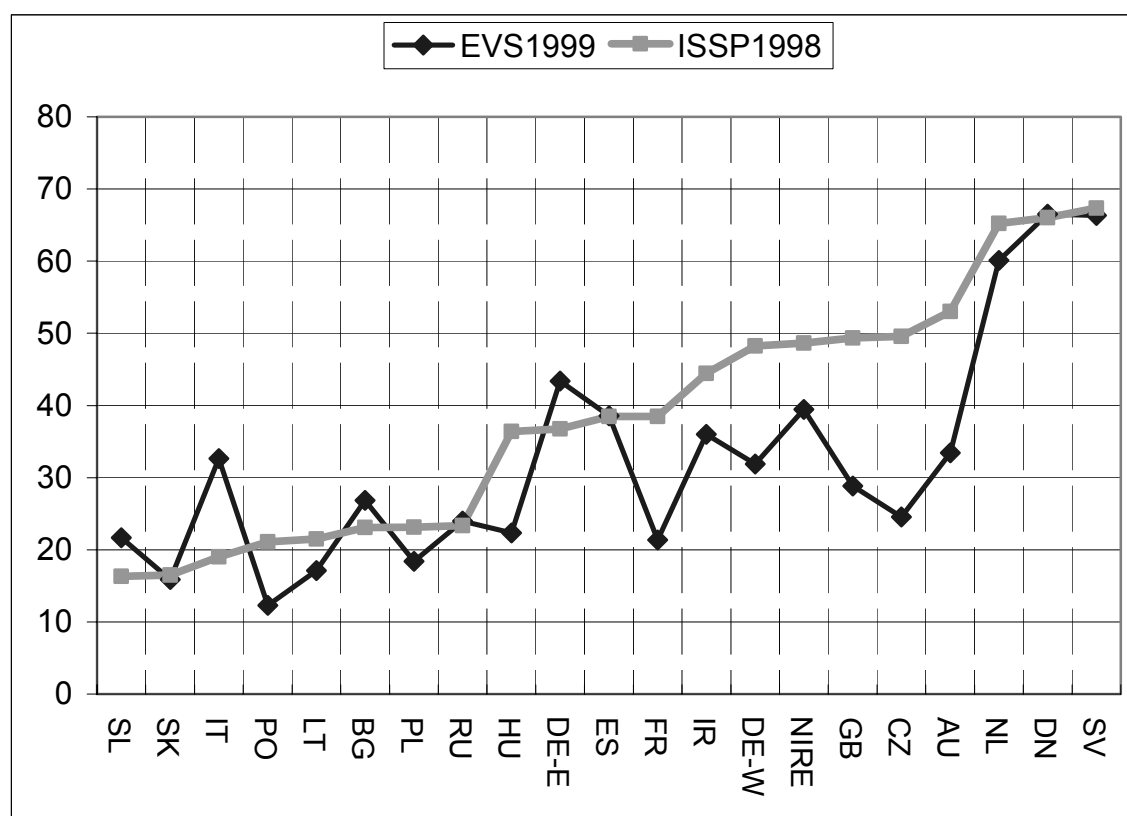
The main difference is that the new question offers four response alternatives instead of two. Apart from that, the wording is still very close to the former ISSP question. It still opposes "people can be trusted" and "you can't be too careful" as the main alternatives. Within these main categories it roughly distinguishes between "almost always" and "usually" on each side. What are the effects of this new item format? We will try to answer this question by comparing the interpersonal trust measures of ISSP 1998 and EVS 1999.

Table 1 Frequency Distribution of Trust in ISSP 1998**V3 Country * V19 Trust in people or can't be too careful Crosstabulation**

		V19 Trust in people or can't be too careful				Total
		1 Always be trusted	2 Usually be trusted	3 Usually too careful	4 Always too careful	
V3 Country	2 D-W-Germany-Wes Count	30	437	377	124	968
	% within V3 Count	3,1%	45,1%	38,9%	12,8%	100,0%
	3 D-E-Germany-East Count	24	334	459	157	974
	% within V3 Count	2,5%	34,3%	47,1%	16,1%	100,0%
	4 GB-Great Britain Count	20	364	350	44	778
	% within V3 Count	2,6%	46,8%	45,0%	5,7%	100,0%
	5 NIRL-Northern Ireland Count	29	348	327	71	775
	% within V3 Count	3,7%	44,9%	42,2%	9,2%	100,0%
	7 A-Austria Count	49	469	358	101	977
	% within V3 Count	5,0%	48,0%	36,6%	10,3%	100,0%
	8 H-Hungary Count	35	325	443	186	989
	% within V3 Count	3,5%	32,9%	44,8%	18,8%	100,0%
	9 I-Italy Count	16	174	561	249	1000
	% within V3 Count	1,6%	17,4%	56,1%	24,9%	100,0%
	10 IRL-Ireland Count	55	386	469	82	992
	% within V3 Count	5,5%	38,9%	47,3%	8,3%	100,0%
	11 NL-Netherlands Count	67	1213	601	81	1962
	% within V3 Count	3,4%	61,8%	30,6%	4,1%	100,0%
	13 S-Sweden Count	123	661	278	102	1164
	% within V3 Count	10,6%	56,8%	23,9%	8,8%	100,0%
	14 CZ-Czech Republic Count	36	543	490	99	1168
	% within V3 Count	3,1%	46,5%	42,0%	8,5%	100,0%
	15 SLO-Slovenia Count	14	149	526	310	999
	% within V3 Count	1,4%	14,9%	52,7%	31,0%	100,0%
	16 PL-Poland Count	20	232	650	188	1090
	% within V3 Count	1,8%	21,3%	59,6%	17,2%	100,0%
	17 BG-Bulgaria Count	40	202	497	310	1049
	% within V3 Count	3,8%	19,3%	47,4%	29,6%	100,0%
	18 RUS-Russia Count	70	312	731	522	1635
	% within V3 Count	4,3%	19,1%	44,7%	31,9%	100,0%
	25 E-Spain Count	265	664	911	574	2414
	% within V3 Count	11,0%	27,5%	37,7%	23,8%	100,0%
	26 LV-Latvia Count	29	224	622	301	1176
	% within V3 Count	2,5%	19,0%	52,9%	25,6%	100,0%
	27 SK-Slovak Republic Count	18	192	690	373	1273
	% within V3 Count	1,4%	15,1%	54,2%	29,3%	100,0%
	28 F-France Count	36	389	517	162	1104
	% within V3 Count	3,3%	35,2%	46,8%	14,7%	100,0%
	30 P-Portugal Count	55	198	798	149	1200
	% within V3 Count	4,6%	16,5%	66,5%	12,4%	100,0%
	32 D-Denmark Count	123	607	287	89	1106
	% within V3 Count	11,1%	54,9%	25,9%	8,0%	100,0%
Total		Count	1154	8423	10942	24793
		% within V3 Count	4,7%	34,0%	44,1%	17,2%

In Table 1 we report the frequency distribution of the new ISSP question. Only those countries are included in the Table which participated in both surveys, the ISSP 1998 and the EVS 1999. At first glance one might object that the replacement of the old dichotomous item was not necessary because the new category 1 (people can almost always be trusted) is nearly empty. The middle categories are more important, however, because they are probably affected most by a change in the response categories. More specifically, one could easily imagine that a larger number of respondents who choose the category “you can’t be too careful” as long as only two categories are offered will switch to the category “People can usually be trusted” if they are confronted with four response alternatives. If this tendency exists we should observe a larger proportion in the first two categories of the ISSP item than in the first category of the EVS item.

Figure 1 Interpersonal Trust in ISSP 1998 and EVS 1999



Legend: Countries which are included in EVS and ISSP:

AU	Austria	BG	Bulgaria	CZ	Czech Republic	DN	Denmark
DE-E	East Germany	DE-W	West Germany	ES	Spain	FR	France
GB	Great Britain	HU	Hungary	LT	Latvia	IR	Ireland
IT	Italy	NIRE	Northern Ireland	NL	Netherlands	PL	Poland
PO	Portugal	RU	Russia	SL	Slovenia	SK	Slovakia
SV	Sweden						

In order to investigate this question empirically we compare in Figure 1 on a country by country basis the percentages of respondents in category 1 and 2 of the ISSP item with the percentages of category 1 of the EVS question. The ISSP percentages are depicted by a grey line and the EVS percentages by a dark line. As can be seen, the ISSP percentages are in the majority of cases above the EVS percentages, in France, Great Britain, West Germany, the Czech Republic and Austria even far above. There are, however, also exceptions from the rule. In Slovenia, Italy, Bulgaria and East Germany the EVS item produces even slightly higher percentages of trustful people. And in a third group of countries the percentages are by and large equal, particularly in the countries with the highest percentages of trust, the Netherlands, Denmark and Sweden. There is a tendency of getting higher percentages of trust with the ISSP question but this tendency is by no means operating in all countries.

On the basis of the unidimensional distribution we cannot decide which items are more suitable for the measurement of interpersonal trust. We will therefore investigate the validity of the measurement instruments in the next section.

3 Construct Validity

The construct validity of interpersonal trust can only be assessed on the basis of our theoretical and empirical knowledge. We need to know the relationship between a given construct or theoretical concept T and other variables in order to determine the construct validity (*Diekmann*, 1995; *Lewis-Beck*, 1994). A construct is validly measured if it displays the theoretically predicted relationships with other variables. More advanced tests could be performed if T and the other variables were measured by multiple indicators. We have to confine ourselves to simple correlation analysis, however.

As there is no fully elaborated theory about the causes and effects of interpersonal trust we will use two generalisations from former empirical studies for our purpose. The first relates the societal level of interpersonal trust to economic development. The second postulates a relationship between interpersonal trust and confidence in parliament.

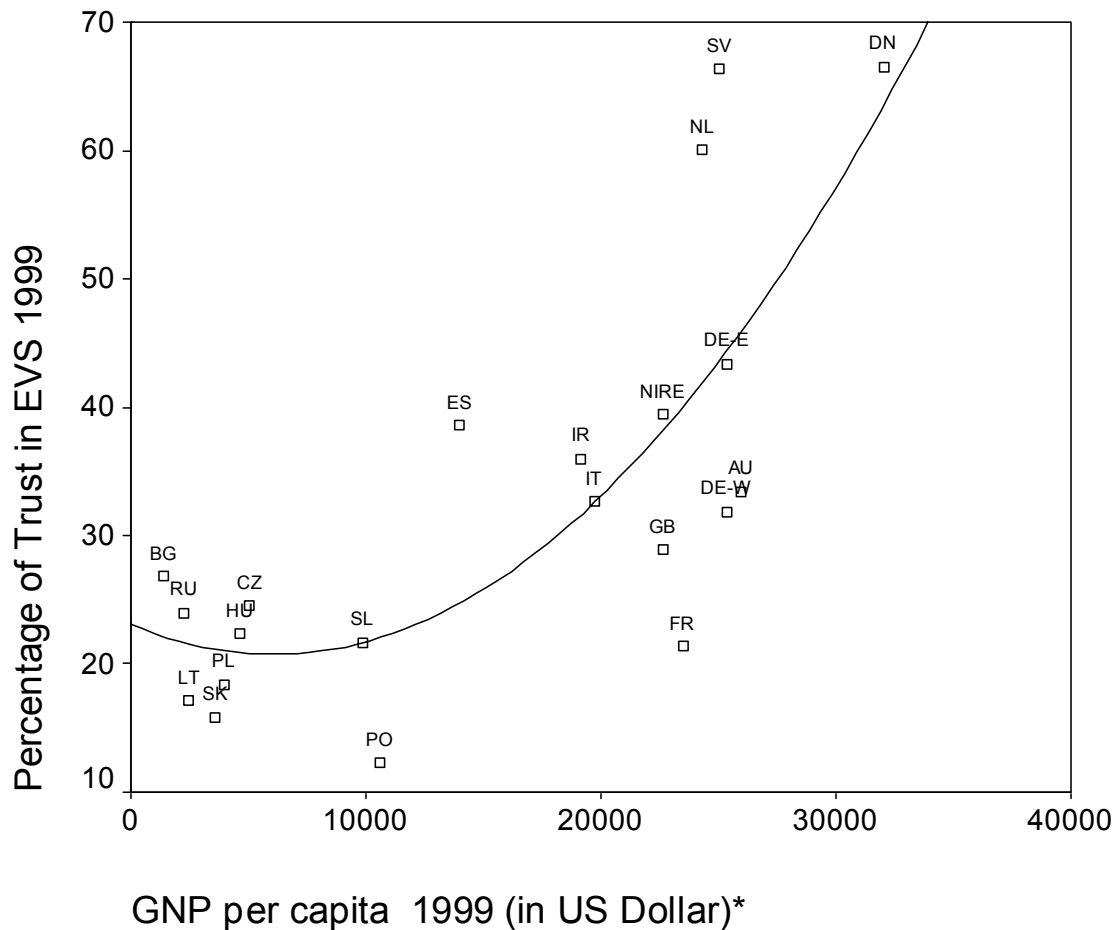
Relationship between Economic Development and Interpersonal Trust on the Macro Level

In spite of the widely discussed decline of interpersonal trust and confidence in institutions in the U.S. (*Putnam* 2000) and a number of Western countries it is usually

assumed that economically more advanced democracies in comparison to developing countries are characterised by a higher level of interpersonal trust. We can leave it open whether trust is a prerequisite of a functioning market economy and democracy or whether vice versa functioning institutions are a precondition of the emergence of trust; or whether, most plausible, trust and functioning institutions develop hand in hand. Interpersonal trust, in any case, should be the higher, the better these institutions function. Thus, if we choose the country as the unit of analysis we should find a positive relationship between the average level of interpersonal trust and the level of economic development.

We test this relationship first with the EVS item. In Figure 2 we report for each country the gross national product per capita in 1999 on the horizontal axis and the percentage of respondents who believe that most people can be trusted. The average trust is highest in Denmark and Sweden – two countries which also have a fairly high per capita GNP. The countries on the opposite left side display a low level of economic development and a low level of trust as well. Thus, in general, there seems to be the predicted positive relationship. A linear and a quadratic relationship are both compatible with our general hypothesis as long as the predicted trust minimum is at the minimum or to the left of the minimum per capita GNP. The empirical analysis shows that by means of the quadratic regression we can explain about seven percent more variance in the dependent variable. Therefore, we have depicted the predicted line of the quadratic regression in Figure 2.

Figure 2 Regression of the Percentage of Interpersonal Trust on the Gross National Product per Capita; EVS 1999

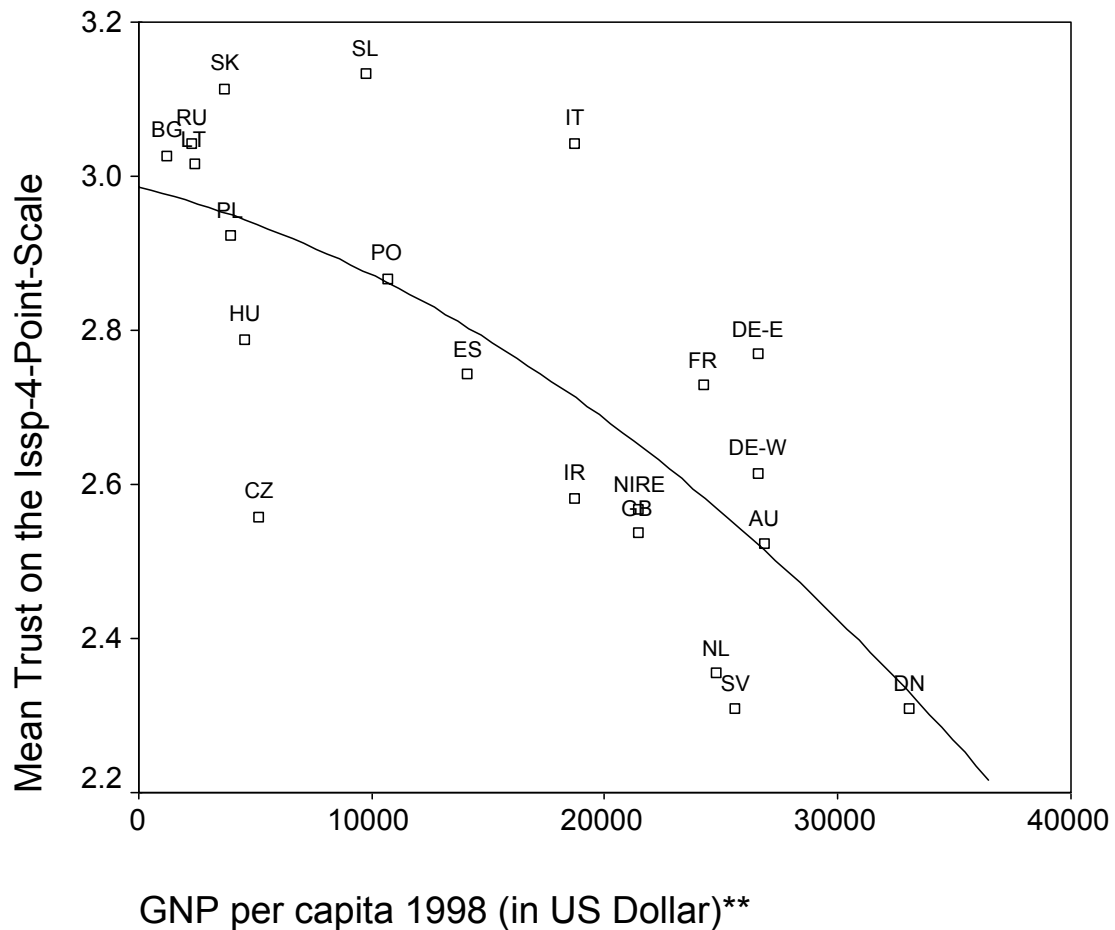


R-Square: Linear = 0.5180; Quadratic = 0.5925

*World Development Indicators database, World Bank, 8/2/2000
<http://www.gm-unccd.org/FIELD/Multi/WB/GNP1999.pdf>.

Is the ISSP item also related to the economic development in the predicted way? Note that in Table 1 low numbers denote high interpersonal trust. Therefore, the average of a country will be the lower the more people have trust in other people. Accordingly, we expect a negative relationship between the ISSP item and economic development. This is exactly the pattern which we find in Figure 3: The higher the economic development the lower the average of the dependent variable. Again, the quadratic regression yields slightly better results than the simple linear regression. While we explain 56 percent variance with the former, the linear model explains only about 55 percent.

Figure 3 Regression of the Average Level of Interpersonal Trust on the Gross National Product per Capita; ISSP 1998



**<http://www.worldbank.org/depweb/english/modules/economic/gnp/datanot.html>

If we compare the results in Figure 2 and Figure 3, the strength of the relationships is almost the same. Regarding the small number of cases, a difference of three per cent explained variance is almost negligible. Thus, both variables perform equally well at the aggregate level.

Relationship between Interpersonal Trust and Confidence in the Parliament

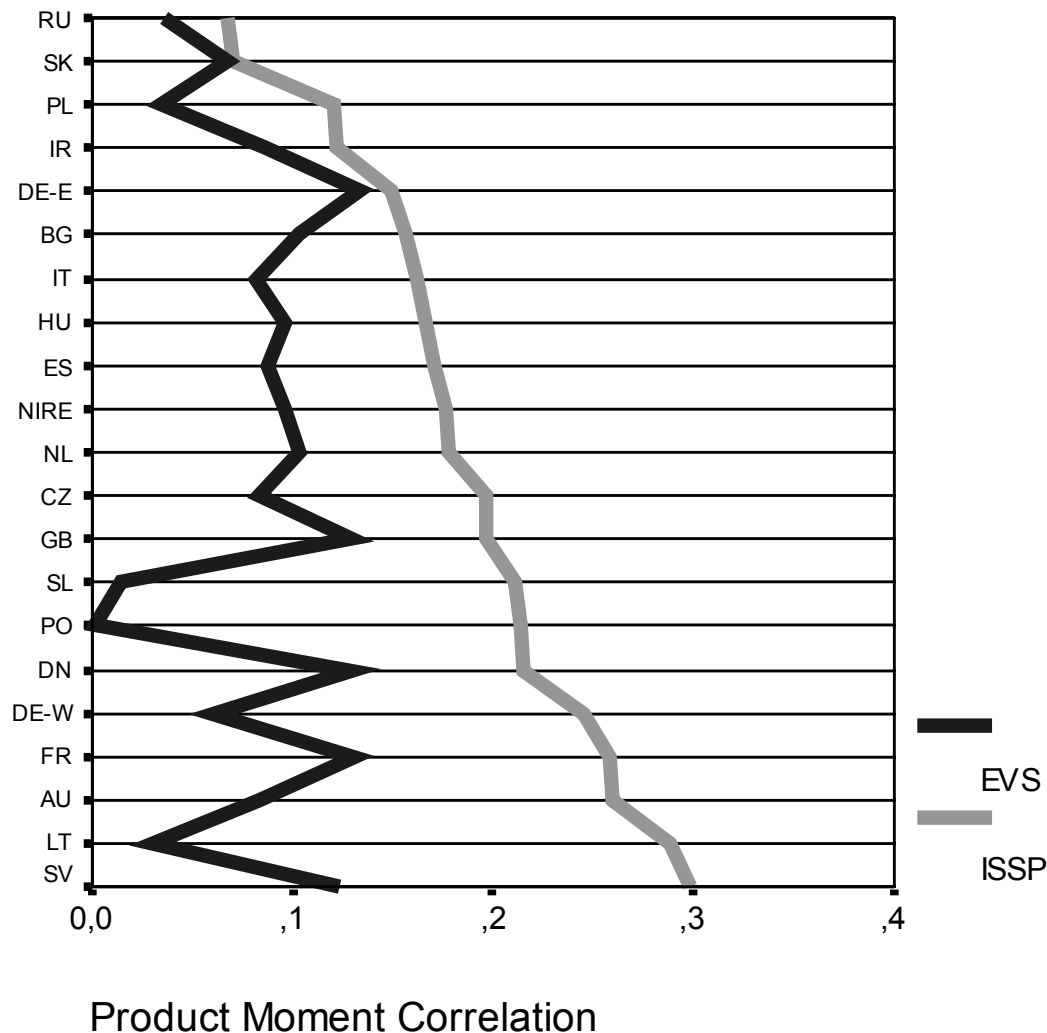
If we assume that the basis of interpersonal trust is laid in early childhood it may affect a number of attitudes and orientations in later life. Children with high trust may not only more easily develop positive affective relationships to their neighbours and friends, they may also be less parochial and hold more positive attitudes towards immigrants and foreigners. Furthermore, they may also have more

confidence in social and political institutions as long as the relations to these institutions have a personal basis. Even in this case interpersonal trust will not be the only determinant of confidence in the institution. If people are dependent on the output of an institution their trust will presumably correlate with the functioning of the institution. The confidence in the institution will be the larger the more important its functions and the better its performance.

Both, the ISSP 1998 and the EVS 1999 include larger item batteries on the confidence in institutions. Among these items the confidence in parliament seems to be suited best for our purposes because it is influenced by personal trust relations. Politicians try in the first place to gain the trust of their constituency. Accordingly, we can expect interpersonal trust to have an important positive impact on confidence in parliament.

EVS and ISSP both apply four-point-scales for measuring confidence in institutions. In both surveys low numerical values indicate high confidence. As the trust variables are similarly coded we expect positive correlations between interpersonal trust and confidence in parliament in both surveys. The correlation coefficients for each country are reported in Appendix 1 and 2. Figure 4 summarises the results graphically. As can be seen, the correlation coefficients are always positive and vary between 0.001 in Poland and about 0.3 in Sweden. Accordingly, our general expectation is confirmed by both surveys. Nevertheless, the results of both surveys differ markedly. While the EVS correlations never reach 0.15 most of the ISSP correlations are above that level. Not a single EVS correlation exceeds the respective ISSP correlation. These results clearly demonstrate that the new ISSP-item with four response categories has a higher external validity than the old dichotomous EVS item. The former therefore should be applied in future research.

Figure 4 Correlations between Interpersonal Trust and Confidence in Parliament in EVS 1999 and ISSP 1998



4 Conclusion

While ISSP 1998 presents a new four-point-scale for measuring interpersonal trust, EVS 1999 still includes the old dichotomous item. This allows us to compare both measurement instruments. While both items are similarly related to the gross national product per capita at the macro level, the new ISSP item is a better predictor of confidence in parliament and in this sense has higher construct validity. A number of caveats have to be made, however. First of all, the confidence items follow immediately after the item of interpersonal trust in the ISSP module 1998 while they are located in a completely different section of the EVS 1999 survey. Thus, a position effect may operate in favour of the ISSP item. Furthermore, the response

scales for trust and confidence in ISSP 1998 all have four categories. This formal correspondence may have augmented the correlations, too.

A further problem is that our analysis has been based on only two external variables. A more comprehensive test of construct validity should include several dependent and independent variables of different formats and possibly also multiple indicators for the theoretical concepts.

This brings us back to the more fundamental problems. Interpersonal trust can be defined in manifold ways. In sociology and psychology it is usually understood as a general, relatively stable personal characteristic. Neither a convincing measurement model nor a fruitful theory has so far been developed for this concept. A theory of interpersonal trust presumably has to differentiate between a stable trait and a component which is affected by the short-term behaviour of others. A measurement model presumably has to take these components into account and cannot be based on a single item. We have to develop better measurement instruments of interpersonal trust in future surveys.

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Appendix 1: Correlations of Confidence in Parliament and Interpersonal Trust in ISSP 1998

Symmetric Measures

V3 Country			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
D-W-Germany-West	Interval by Interval	Pearson's R	,245	,033	7,747	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,237	,032	7,469	,000 ^c
	N of Valid Cases		938			
D-E-Germany-East	Interval by Interval	Pearson's R	,148	,032	4,607	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,172	,032	5,352	,000 ^c
	N of Valid Cases		944			
GB-Great Britain	Interval by Interval	Pearson's R	,197	,037	5,517	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,204	,036	5,712	,000 ^c
	N of Valid Cases		755			
NIRL-Northern Ireland	Interval by Interval	Pearson's R	,176	,040	4,814	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,181	,038	4,948	,000 ^c
	N of Valid Cases		728			
A-Austria	Interval by Interval	Pearson's R	,260	,032	8,279	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,258	,032	8,196	,000 ^c
	N of Valid Cases		947			
H-Hungary	Interval by Interval	Pearson's R	,166	,033	5,206	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,161	,032	5,030	,000 ^c
	N of Valid Cases		953			
I-Italy	Interval by Interval	Pearson's R	,162	,033	5,140	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,172	,032	5,471	,000 ^c
	N of Valid Cases		982			
IRL-Ireland	Interval by Interval	Pearson's R	,121	,034	3,810	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,115	,033	3,598	,000 ^c
	N of Valid Cases		973			
NL-Netherlands	Interval by Interval	Pearson's R	,178	,024	7,913	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,190	,023	8,448	,000 ^c
	N of Valid Cases		1911			
S-Sweden	Interval by Interval	Pearson's R	,299	,029	10,465	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,302	,028	10,609	,000 ^c
	N of Valid Cases		1120			
CZ-Czech Republic	Interval by Interval	Pearson's R	,196	,030	6,726	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,232	,029	8,029	,000 ^c
	N of Valid Cases		1132			
SLO-Slovenia	Interval by Interval	Pearson's R	,210	,033	6,581	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,218	,032	6,847	,000 ^c
	N of Valid Cases		938			
PL-Poland	Interval by Interval	Pearson's R	,121	,032	3,759	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,131	,032	4,089	,000 ^c
	N of Valid Cases		960			
BG-Bulgaria	Interval by Interval	Pearson's R	,156	,032	4,933	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,178	,032	5,638	,000 ^c
	N of Valid Cases		979			
RUS-Russia	Interval by Interval	Pearson's R	,067	,027	2,624	,009 ^c
	Ordinal by Ordinal	Spearman Correlation	,058	,026	2,262	,024 ^c
	N of Valid Cases		1514			
E-Spain	Interval by Interval	Pearson's R	,171	,022	8,075	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,175	,022	8,280	,000 ^c
	N of Valid Cases		2174			
LV-Latvia	Interval by Interval	Pearson's R	,288	,029	10,091	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,287	,028	10,047	,000 ^c
	N of Valid Cases		1128			
SK-Slovak Republic	Interval by Interval	Pearson's R	,070	,030	2,424	,015 ^c
	Ordinal by Ordinal	Spearman Correlation	,066	,029	2,272	,023 ^c
	N of Valid Cases		1191			
F-France	Interval by Interval	Pearson's R	,259	,032	8,641	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,266	,030	8,903	,000 ^c
	N of Valid Cases		1043			
P-Portugal	Interval by Interval	Pearson's R	,214	,033	7,381	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,206	,030	7,101	,000 ^c
	N of Valid Cases		1140			
D-Denmark	Interval by Interval	Pearson's R	,216	,031	7,311	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,225	,030	7,642	,000 ^c
	N of Valid Cases		1098			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Appendix 2: Correlations of Confidence in Parliament and Interpersonal Trust in EVS 1999

Symmetric Measures

ISSPCTRY			Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
DE-W	Interval by Interval	Pearson's R	,060	,032	1,845	,065 ^c
	Ordinal by Ordinal	Spearman Correlation	,078	,032	2,404	,016 ^c
	N of Valid Cases		946			
DE-E	Interval by Interval	Pearson's R	,134	,033	4,051	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,136	,033	4,123	,000 ^c
	N of Valid Cases		899			
GB	Interval by Interval	Pearson's R	,129	,032	3,932	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,126	,032	3,842	,000 ^c
	N of Valid Cases		918			
NIRE	Interval by Interval	Pearson's R	,096	,033	2,887	,004 ^c
	Ordinal by Ordinal	Spearman Correlation	,104	,033	3,126	,002 ^c
	N of Valid Cases		895			
AU	Interval by Interval	Pearson's R	,083	,026	3,080	,002 ^c
	Ordinal by Ordinal	Spearman Correlation	,085	,026	3,162	,002 ^c
	N of Valid Cases		1366			
HU	Interval by Interval	Pearson's R	,096	,033	2,953	,003 ^c
	Ordinal by Ordinal	Spearman Correlation	,095	,032	2,941	,003 ^c
	N of Valid Cases		948			
IT	Interval by Interval	Pearson's R	,081	,023	3,559	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,082	,023	3,563	,000 ^c
	N of Valid Cases		1897			
IR	Interval by Interval	Pearson's R	,087	,032	2,704	,007 ^c
	Ordinal by Ordinal	Spearman Correlation	,088	,032	2,735	,006 ^c
	N of Valid Cases		967			
NL	Interval by Interval	Pearson's R	,103	,032	3,266	,001 ^c
	Ordinal by Ordinal	Spearman Correlation	,111	,032	3,492	,001 ^c
	N of Valid Cases		987			
SV	Interval by Interval	Pearson's R	,124	,032	3,849	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,123	,032	3,810	,000 ^c
	N of Valid Cases		953			
CZ	Interval by Interval	Pearson's R	,083	,023	3,550	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,083	,023	3,561	,000 ^c
	N of Valid Cases		1827			
SL	Interval by Interval	Pearson's R	,015	,031	,449	,653 ^c
	Ordinal by Ordinal	Spearman Correlation	,026	,032	,810	,418 ^c
	N of Valid Cases		945			
PL	Interval by Interval	Pearson's R	,035	,031	1,084	,279 ^c
	Ordinal by Ordinal	Spearman Correlation	,037	,031	1,154	,249 ^c
	N of Valid Cases		967			
BG	Interval by Interval	Pearson's R	,103	,034	3,076	,002 ^c
	Ordinal by Ordinal	Spearman Correlation	,099	,034	2,967	,003 ^c
	N of Valid Cases		893			
RU	Interval by Interval	Pearson's R	,036	,021	1,703	,089 ^c
	Ordinal by Ordinal	Spearman Correlation	,037	,021	1,754	,080 ^c
	N of Valid Cases		2220			
ES	Interval by Interval	Pearson's R	,088	,031	2,860	,004 ^c
	Ordinal by Ordinal	Spearman Correlation	,086	,031	2,796	,005 ^c
	N of Valid Cases		1059			
LT	Interval by Interval	Pearson's R	,029	,032	,905	,365 ^c
	Ordinal by Ordinal	Spearman Correlation	,028	,032	,873	,383 ^c
	N of Valid Cases		947			
SK	Interval by Interval	Pearson's R	,068	,029	2,322	,020 ^c
	Ordinal by Ordinal	Spearman Correlation	,069	,029	2,353	,019 ^c
	N of Valid Cases		1174			
FR	Interval by Interval	Pearson's R	,130	,025	5,056	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,130	,025	5,072	,000 ^c
	N of Valid Cases		1493			
PO	Interval by Interval	Pearson's R	,001	,034	,036	,971 ^c
	Ordinal by Ordinal	Spearman Correlation	,000	,034	,009	,993 ^c
	N of Valid Cases		877			
DN	Interval by Interval	Pearson's R	,130	,033	4,032	,000 ^c
	Ordinal by Ordinal	Spearman Correlation	,130	,033	4,054	,000 ^c
	N of Valid Cases		953			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.